at the anterior nares, no permanent nasal flora exists. The mouth and throat, on the contrary, offer a favorable site for bacterial growth, as has been frequently shown by the presence of a definite flora even in the presence of the best possible oral hygiene. The flushing action of the abundant secretions here is a large factor of safety. The author points out that test-tube experiments are not lacking to show the inhibitory action of saliva on a variety of organisms, while studies *in vivo* have not been reported. He performed a number of well controlled experiments, which seem to indicate clearly the inhibitory and bactericidal action of saliva on sarcina lutea. This action was quite rapid, and was independent of the effect upon bacteria normally present in the saliva. In brief, he found that cultures made at intervals up to twenty-fours hours from suspensions of sarcina in saliva yielded rapidly decreasing numbers of colonies of sarcina. The number after fifteen minutes was much reduced, only an occasional microörganism could be found after one hour, and none after two hours. The reaction of the saliva had apparently no influence, as the sarcina were readily grown in media of a slightly wider range of reaction than that found in the various specimens of saliva studied. There are a number of pathogenic bacteria which have been shown to flourish better in saliva than in broth, notably the pneumococcus. The meningococcus, too, has been found to grow better in media to which a little saliva is added. It would seem that the fate of sarcina lutea is well established by the present study, but how far inference by analogy may be carried is indeed debatable. The author promises further reports on other organisms.

Histological Changes in Squamous-cell Carcinoma of the Cervix of the Uterus after Radiation.—Justification for the use of radium in medicine can usually be determined by a more or less superficial examination. The exact problem in defining the effect of radium rays on normal and pathological tissue, however, requires a thorough understanding of both the radium and the malignant growth. Although many investigators have been impressed with the marked change in the relative amounts of parenchyma and stroma following irradiation, ALTER (*Jour. Med. Res.*, 1919, xl, 241) believes that the chronological sequence of the alterations in radiumized tissues is of utmost importance and cautions against drawing the generalized conclusions from an individual type of growth. In a series of 275 cases of squamous-cell carcinoma of cervix, ample opportunity was afforded to study several specimens from the same case representing different stages after radiation. The amount of radiation varied greatly, due to the proximity of application, but the error can be reduced to the minimum if a standard dosage with a varying time factor is assumed. The histological technic consisted in the judicious employment of various fixing and staining methods. The author calls attention to the fact that most cancers of the cervix arise from the basal-cell layer and are, therefore, non-keratinizing. Immediately after radiation, there is a latent period, the duration of which varies and cannot be determined without experiments. The earliest changes are inflammatory in nature and consist in an extensive eosinophilic infiltration as well as the formation of many young, engorged blood channels with free hemorrhage and edema. After the first week, definite changes in the tumor cells occur and remain dominant. Both the nuclei and protoplasm swell, the former becoming uniformly pyknotic and their staining affinity changing from basophilic to acidophilic. A progressive vacuolar degeneration along with the eosinophilia, suggests profound chemical destruction. The tissues nearest the radium suffer first and, depending on the treatment, may resume malignant activities or proceed to more advanced retrogression. After continued radiation, mitotic figures disappear, usually in the second week and the stroma begins its ever-increasing advance, at first becoming diffuse so that the carcinoma really resembles a sarcoma. Later, the parenchyma is split into irregular islands by bands of cellular, young connective tissue. From the third week onward the chromatin substance suffers markedly, until, with dispersion of the nuclei it forms irregular globules and a diffuse mesh-work. About nine weeks after radiation, groups of peculiar, foamy, chromatin bodies occur in the stroma which increases in amount with a consequent decrease in the parenchyma. The author calls especial attention to the primary destruction of the tumor cells by the radium rays and the secondary increase in the connective tissue, which, while never actively proliferating, increases in volume, later only to contract into the usual collagenous or hyaline scar tissue.

HYGIENE AND PUBLIC HEALTH

UNDER THE CHARGE OF
MILTON J. ROSENAU, M.D.,
PROFESSOR OF PREVENTIVE MEDICINE AND HYGIENE, HARVARD MEDICAL SCHOOL,
BOSTON, MASSACHUSETTS,
AND
GEORGE W. McCOY, M.D.,
DIRECTOR OF HYGIENIC LABORATORY, UNITED STATES PUBLIC HEALTH SERVICE,
WASHINGTON, D. C.

Health Activities in Colleges and Universities.—SUNDWALL (*Public Health Reports,* No. 45, xxxiv, 2489) gives the following as a summary of an exhaustive treatment of the subject: (1) *Aims:* The University Health Service endeavors to be a most potent factor in reducing to the very minimum that large annual academic and economic loss which is due to the indisposition and illness of students. Further, its aim is to help each student entering the university to possess a healthy, vigorous, active and harmoniously developed body. The University Health Service stands for positive health. (2) *Activities:* There are three main divisions to its activities: (*a*) Personal attention, (*b*) sanitation, and (*c*) education. (*a*) The personal division is concerned with the physical examination of all students. Complete physical records should be kept. From each record can be determined in a large measure, just what procedure is necessary to keep the student in the best physical condition